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REMARKS

Claims 5-18 are pending in this application. Claims 1-4 were previously canceled.

Claims 5 and 6 have been amended herein. In view of these amendments and remarks, Applicant respectfully requests reconsideration of the claims.

In the Office Action dated July 14, 2006, the Examiner indicated that some of the Amendments to the specification set out in the preliminary Amendment had not been entered because of a new matter issue. Applicant respectfully disagrees. Consequently, the Examiner and Applicant discussed the application via a telephone conference. In the telephone conference, amended independent claims were tentatively agreed to, and although the issue was not specifically discussed, it is the Applicant's understanding that the Examiner is now willing to enter the amendments as included in the Preliminary Amendment. The Examiner also requested further arguments concerning this issue and the art rejections. These arguments are set out below.

More specifically, the Examiner states at page 4, in the penultimate paragraph that he "could not find any description whatsoever of sidewall 18 of trench 16 having sidewall portions perpendicular to said surface in the specification (*including the drawings*) as originally filed." Applicant disagrees and does not understand how the Examiner can take this position. First of all, every one of the drawings (i.e. FIGs 1A-1E illustrate an upper surface 14 on the semiconductor body where the trench sidewalls 18 are clearly shown as being perpendicular to or at right angles with upper surface 14. It should also be noted that according to the embodiment disclosed, in each of the figures, upper surface 18 lies in the <100> crystallographic plane as does four of the sidewalls 18 perpendicular to the surface of the octagonal trench 16. The other four

perpendicular sidewalls 18 of the octagonal trench 16 lie in the  $\langle 110 \rangle$  crystallographic plane. (See FIGs 2B-2E). Thus, in the embodiment illustrated in the figures, it is clear that the sidewalls 18 that lie in both the  $\langle 100 \rangle$  and the  $\langle 110 \rangle$  crystallographic planes are perpendicular to the semiconductor body surface 14, which also lies in a  $\langle 100 \rangle$  plane.

It is also noted that on page 5 of the Office Action, the Examiner states that Applicant *asserts* that the figures show the sidewall portions perpendicular to the [semiconductor] surface *contrary to their own description*. Applicant simply does not understand this statement and is not aware of any description in the specification that is contrary to Applicant's statement or position that the sidewall of the trench are perpendicular to the surface of the semiconductor body. Likewise, the Examiner states that Applicant's amendment that adds the word "vertical" is conclusive proof that the specification as originally filed did not disclose the claimed limitation that the trench has sidewalls perpendicular to the surface. Applicant is completely mystified how the Examiner can develop such a statement and respectfully requests that the Examiner walk the Applicant through the reasoning process to arrive at such a conclusion.

Claims 5-18 were rejected under 35 U.S.C. 103(a) as being obvious over Allison and further in view of Hwang, *et al.* Applicant respectfully disagrees.

More specifically, in the rejection, the Examiner alleges that the sidewall portions of the Allison trench are perpendicular to the surface of the semiconductor body, and refers to FIG. 5 of Allison as showing such perpendicular walls. However, it is respectfully submitted that the trench sidewalls of Allison (i.e., walls 17a) clearly illustrate that the sidewalls are not perpendicular to the surface but are inclined or sloped to form a "V" shaped trench. Further, column 3, line 58 of Allison clearly refers to "sloping walls 17a," and column 6, lines 16-17 describes the sidewalls 32 and 33 of FIGs. 10-12 as being inclined at a  $45^\circ$  angle from the

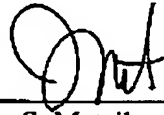
vertical (i.e., not perpendicular to the surface). Therefore, it is clear that the claim requirement that the first upper portion of the sidewalls be perpendicular to the surface of the semiconductor body is not met by the references. Further, the Examiner correctly acknowledges that Allison does not describe second upper sidewall portions that are disposed in a different crystallographic plane that is also perpendicular to the surface of the semiconductor body. To overcome this shortcoming of the Allison reference, the Examiner refers to FIG. 4 and column 3, lines 20-42 of Hwang, *et al.* It is true that Hwang, *et al.* does show a *lower* portion of the trench sidewall that is perpendicular to the surface, but not Hwang, *et al.* does not show a second or top portion that is perpendicular. The top portion of the Hwang, *et al.* trench is at an angle to the surface. Therefore, even when combined, the Allison and Hwang, *et al.* references do not disclose a first upper sidewall portion in a first crystallographic plane perpendicular to the semiconductor body surface, much less a second upper sidewall portion in a second crystallographic plane also perpendicular to the semiconductor body surface.

Therefore, it is respectfully submitted that the claims are patentable over all of the references of record, whether considered singly or in combination.

In view of the above, Applicant respectfully submits that the application is in condition for allowance and requests that the Examiner pass the case to issuance. If the Examiner should have any questions, Applicant requests that the Examiner contact Applicant's attorney at 972-732-1001 so that such issues may be resolved as expeditiously as possible. No fee is believed due in connection with this filing. However, should one be deemed due, the Commissioner is hereby authorized to charge the appropriate fees to Deposit Account No. 50-1065.

Respectfully submitted,

10/11/06  
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Date

  
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